

## EXPLANATION OF PLATE III.

- Fig. 1. Vesicle of *Campanularia Syringa*.  
 — 2. The same in an earlier stage.  
 — 3. The same, highly magnified, to show the details of structure.  
 — 4. "Compound vesicle" of *Sertularia argentea* from Sir J. G. Dalzell.  
 — 5 a. Medusoid of *Campanularia volubilis*. b. Two of the tentacles and the intermediate tubercles. c. A tentacle and its bulb.  
 — 6. *Laomedea lacerata* (highly magnified). a. The same in the young state.

## IX.—Contributions to the Palæontology of the Isle of Wight.

By THOMAS WRIGHT, M.D. &amp;c.\*

IT has been supposed that the tertiary beds of England, when compared with those of the continent of Europe, are deficient in mammalian remains; this opinion, like many other hasty generalizations, if it be not entirely fallacious, requires modification. The valuable series of mammalian remains obtained from time to time from the lacustrine strata of Kyson, Hordwell, and the Isle of Wight, lead us to believe that if similar facilities existed in these localities for working the beds from whence mammalian bones and teeth are obtained, as is the case in the neighbourhood of Paris, the richness of the English tertiaries in these remains would no longer be a doubtful question. We have been led to this conclusion from facts which have come under our observation during the two consecutive summers we were engaged in drawing up a description of the coast sections of Hampshire and the Isle of Wight, and which have already appeared in the pages of this Journal. Until last summer no remains of the new genus *Dichodon* had been found, except in one spot in the Hordwell section, when I had the good fortune to discover, near Alum Point, Isle of Wight, a portion of the lower jaw of this singular genus with the true molars "in situ" in beautiful preservation. This jaw fortunately supplies some points in the anatomy of this rare mammal, which were absent in the only specimen hitherto found, and which it is the object of this note to furnish.

*Dichodon cuspidatus*, Owen.

The dental formula of the lower jaw of *Dichodon cuspidatus*, according to Professor Owen, consists of three incisors, one canine, four premolars, and three true molars, arranged in a continuous series in each ramus, and it is inferred that these were

\* Read at Cheltenham at a Meeting of the Cotteswold Naturalists' Club, May 4, 1852.

opposed by the same number of teeth in the upper jaw. "There are wanting therefore to establish *ex visu* the entire dental series, only the first and second premolars of the upper jaw and the last true molar of the lower jaw, the germ of which had not been sufficiently calcified at the time of the animal's death to yield satisfactory evidence of its true form\*." Having recently discovered a portion of the left ramus of the lower jaw of this rare mammal in the lower freshwater formation of the Isle of Wight, containing the three true molars in an admirable state of preservation, I am enabled to supply a description thereof.

The crowns of all the true molars exhibit a double series of sharp conical lobes; the teeth are fixed obliquely in the jaw, their crowns having a direction forwards, inwards and upwards, the obliquity of the inclination increasing from before backwards; the first and second molars are nearly alike in size, form and structure; the first, however, is somewhat smaller than the second; the crown of each tooth rises high above the ramus of the jaw; it consists of four semiconical-shaped lobes, two external and two internal, separated from each other by a deep transverse and a shallow longitudinal valley; the two external lobes are sharply lanceolate; each has a median ridge of enamel and two sharp supernumerary processes or cusps, situated at the external sides of the base of each lobe; the inner surface is convex and smooth, and as the apices of the lobes are not worn, the double fold of enamel, with its intermediate dentine, is beautifully shown in our specimen.

The internal lobes are larger and more fully developed than the external pair, but their apices do not attain the same height as those of the external lobes; their internal surface is smooth and convex, their external surface is moderately concave, and inclined to a high angle; at the base of the external surface of each of the internal lobes there are two small tubercles or rudimentary cusps: the posterior marginal surface of all the lobes is slightly polished by dentition, whilst their sharp lanceolate points are not worn, from which circumstance it may be logically inferred, that the lobes of the teeth of the lower jaw locked into corresponding spaces in those of the upper jaw, as in the hedgehog (*Erinaceus europæus*), the mole (*Talpa vulgaris*), and other Insectivora.

The third true molar differs from the first and second in possessing six instead of four lobes; the four anterior lobes are of the same form and structure as those of the second molar, only they are somewhat larger; the third or posterior pair are smaller than either of the others, and they have a more rudi-

\* Quart. Journ. Geol. Soc. vol. iv. p. 42.

mentary form; the anterior cusp is absent at the base of the external lobe, and the posterior cusp is a small process which rises between the external and internal lobes.

*Locality.*—I found this rare fossil in a bed of greenish tough tenacious clay, being No. 35 of my section\*, and which stratum I have shown to be the equivalent of No. 14 of my section of Hordwell, Beacon, and Barton Cliffs†, from whence Mr. Falconer obtained the specimen which formed the subject of Professor Owen's paper. It is important, therefore, to note that these mammalian remains have been found in precisely the same geological horizon on both shores of the Solent sea; thus affording another link in the chain of evidence which proves the former union of these tertiary beds. I have promised the loan of this specimen to Professor Owen, who will figure it in the forthcoming new edition of his 'British Fossil Mammalia;' for this reason I have not figured it here.

#### *Tooth of an unknown Saurian.*

I had the good fortune to meet with a very perfect reptilian tooth in the Wealden clay of Brixton Bay; the accompanying figure, of the natural size, was drawn on wood by Mr. W. H. Baily, as it is important that palæontologists should possess a faithful drawing of its singular form, to enable them to compare future discoveries with the subject of this note, and eventually to determine the genus of Saurians to which it belonged. I had the pleasure of showing this tooth to Professors Forbes, Gervais and Owen, Dr. Mantell, and Messrs. Waterhouse and Woodward, who were all unacquainted with the form. Dr. Mantell thought it had some resemblance to a tooth found in the Wealden of Tilgate Forest, and which he imagined belonged to the *Hyaleosaurus*. "These teeth," he observes, "are about  $1\frac{1}{4}$  inch in height, and commence at the base with a cylindrical shank, which gradually enlarges into a crown of an obtusely lanceolate form, convex in front, slightly depressed, and terminating in an angular rounded apex, the margins of which are generally more or less worn, as if from denitition. The crown is solid, but the fang encloses a small pulp-cavity; the surface is enamelled, and covered with very fine longitudinal striæ; the base in every specimen appears broken transversely, and has not a smooth surface, as if it had been loosened by absorption and shed naturally‡." The Doctor has given a figure of this tooth which dif-

\* Dr. Wright, Geology of the North-West coast of the Isle of Wight (Annals of Nat. Hist. S. 2. vol. vii. p. 14).

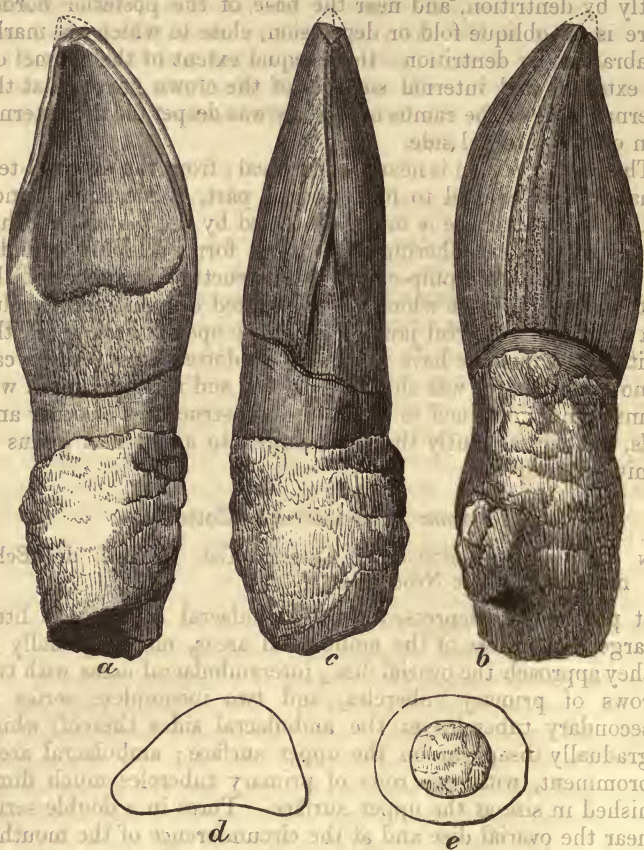
† Annals of Nat. Hist. S. 2. vol. vii. p. 433.

‡ Hand-Book of the Fossils of the British Museum, p. 326.



fers so much from our specimen, that we cannot suppose it belonged to a reptile of the same genus.

*Description.*—Our new tooth is divisible into the crown and the root: the line of demarcation between these parts is clearly defined by the terminal undulation of the enamel. The crown is somewhat of a bayonet-shape; from the frontier line of the enamel to the apex, it measures in front 1 inch and  $\frac{1}{20}$ ths; behind 2 inches and  $\frac{1}{20}$ th; the antero-posterior diameter at its widest part exceeds 1 inch, and its transverse diameter is  $\frac{6}{10}$ ths of an inch (*d*).



The crown (*d, b, c*) is unequally convex in front and concave (*a*) behind. The general form of the crown is shown in *a, b, c*; the anterior side thereof (*a, b*) is convex and sabre-shaped, and the posterior border (*a, b*) is slightly concave; the external

convex surface (*b*) is covered with smooth enamel, which forms four blunt ridges on its most prominent part, and terminates inferiorly in a delicate rugous structure, forming a well-defined arch (*b*), the convexity of which is directed towards the apex; the posterior surface of the crown (*a*) is flat below and concave above; the enamel is smooth above and rugous below, as on the anterior surface, but it extends much farther down the crown (nearly half an inch) and forms an arch, the convexity of which is directed towards the root; the internal surfaces of the anterior and posterior borders (*a*) are abruptly truncated, apparently by dentrition, and near the base of the posterior border there is an oblique fold or depression, close to which are marks of abrasion by dentrition: the unequal extent of the enamel on the external and internal surfaces of the crown proves that the external plate of the ramus of the jaw was deeper on the external than on the internal side.

The root (*a, b, c, e*) is nearly cylindrical; from the external terminal fold of enamel to its fractured part, it measures 1 inch and  $\frac{9}{10}$ ths; its surface is much concealed by the matrix, and has masses of pyrites adhering thereto; it forms a hollow cylinder (*e*) which inclosed a pulp-cavity; the structure and form of the root is that of a tooth which was implanted in a distinct alveolus of a large and powerful jaw. Part of the apex is broken off, the position of which we have indicated by dotted lines; there can be no doubt that it was sharply pointed, and that this tooth was an instrument destined to pierce the soft structures of other animals, and consequently that it belonged to an extinct genus of carnivorous reptiles.

*Diadema Autissiodorensis*, Cotteau.

SYN. *Diadema Autissiodorensis*, Cotteau, Cat. Méthod. des Echinides dans l'étage Néocomien, p. 5.

Test pentagonal, depressed; interambulacral tubercles a little larger than those of the ambulacral areas, more especially as they approach the ovarial disc; interambulacral areas with two rows of primary tubercles, and two incomplete series of secondary tubercles at the ambulacral sides thereof, which gradually disappear on the upper surface; ambulacral areas prominent, with two rows of primary tubercles much diminished in size at the upper surface. Pores in a double series near the ovarial disc and at the circumference of the mouth.

Height  $\frac{1}{10}$ ths of an inch; transverse diameter  $\frac{1}{20}$ ths of an inch.

[Description.—In its general outline this beautiful Urchin resembles *D. depressum* of the Inferior Oolite, but the details of its

structure are very distinct from that form. The circumference is pentagonal from the convexity of the ambulacral aræ, and the base and summit are much depressed.

The interambulacral areas are one-third broader than the ambulacral; two rows of primary tubercles occupy the centre of the plates; there are about ten pairs of tubercles in each area, which are of a moderate magnitude, and gradually diminish in size from the circumference to the base and summit; the mammillary eminences are small, their summits are deeply crenulated, and the tubercles, of proportional size, are deeply perforated; at the circumference six rows of granules separate the tubercles from each other, but towards the upper surface the four central rows are absent, which leaves a naked space in the middle of the area; three rows of granules in like manner separate the tubercles from the poriferous valleys; at the base of the area, and extending as far as the circumference of the test, are incomplete rows of secondary tubercles; these gradually diminish in size and disappear at the upper surface, which is occupied with an unequal-sized, close-set granulation about three rows deep; the ambulacral areas are one-third narrower than the interambulacral, they are however very prominent and convex, and are occupied with two rows of primary tubercles about ten in a row; the lower six pairs of tubercles are nearly as large as the corresponding tubercles in the interambulacral areas, but the upper four pairs are much smaller, so that whilst there is a great uniformity in the size and form of the tubercles on the base and circumference of the test, there is a very marked difference between those of the ambulacra and those of the interambulacra in the vicinity of the ovarial disc; the intertubercular space is occupied by a zig-zag band of granulation, which is narrow below where the tubercles are large, but becomes broader above where they are small. The pores are arranged in double pairs near the summit and mouth, but in the other part of the avenues they are in single pairs; the apical disc is absent in our specimen, and the mouth is large and decagonal.

*Affinities and differences.*—This species nearly resembles *D. Bourgueti*, Ag., but differs from it in the rudimentary condition of the upper tubercles of the ambulacra, and in having the pores in double pairs above and below; the intermediate granulation is likewise less homogeneous than in *D. Bourgueti*.

*Locality.*—I collected this Urchin from the lower greensand at Atherfield, in No. 4 of the Cracker group of Dr. Fitton's section: it must be very rare, as none of the cabinets of Atherfield fossils hitherto examined by me contain a specimen of this *Diadema*. It has been collected by M. Cotteau from the Néocomien stage at Auxerre, where it is likewise very rare.



*History.*—Discovered by the author in the Isle of Wight in 1850, and by M. Cotteau in France in 1851, but first described by the latter in his 'Catalogue Méthodique des Echinides recueillis dans l'étage Néocomien,' and which brochure I received since I read this communication. As there is no figure of this Urchin extant, I intend giving one of the beautiful specimen before me, along with some other new forms of that group which I hope shortly to publish in the 'Annals of Natural History.'

X.—*Descriptions of some newly discovered species of Araneidea.*

By JOHN BLACKWALL, F.L.S.

IN November 1850, Francis Walker, Esq., of Arno's Grove, Southgate, afforded me an opportunity of inspecting an extensive collection of spiders made by him in England and Switzerland in the summer of the same year; and a request that I might be permitted to describe the following species comprised in the collection, which appear to be new to science, was most obligingly complied with by Mr. Walker.

Tribe OCTONOCULINA.

Family LYCOSIDÆ.

Genus *Lycosa*, Latr.

1. *Lycosa calida*.

Length of the male  $\frac{1}{2}$ th of an inch; length of the cephalo-thorax  $\frac{1}{10}$ ; breadth  $\frac{1}{4}$ ; breadth of the abdomen  $\frac{1}{16}$ ; length of a posterior leg  $\frac{7}{16}$ ; length of a leg of the third pair  $\frac{3}{10}$ .

Cephalo-thorax large, convex, glossy, compressed before, with a slight longitudinal indentation in the medial line of the posterior region; its colour is dark brown, approaching to black at the anterior part; a broad band of reddish brown extends along the middle, another occurs on each side, and a narrow one of the same hue is situated immediately above each lateral margin. Four of the eight eyes are minute and form a transverse line in front, the two intermediate ones being somewhat larger than the lateral ones; the other four are large, and are situated on the sides and in front of the cephalo-thorax, constituting a quadrilateral figure, whose anterior side is rather the shortest; the anterior eyes of the quadrilateral are the largest of the eight. Falces conical, perpendicular, armed with a few teeth on the inner surface, and of a pale reddish brown colour, with two obscure, longitudinal streaks of dark brown in front. Maxillæ strong, short, straight, somewhat enlarged and rounded at the